



#15

HMR2053usnp1.ST25  
SEQUENCE LISTING

<110> AVENTIS PHARMACEUTICALS INC.  
GUO, Yong  
MORSE, Clarence  
YAO, Zhengbin

<120> MEMBRANE PENETRATING PEPTIDES AND USES THEREOF

<130> HMR2053 USNP1

<140> 09/933,780

<141> 2001-08-21

<150> US 60/27,647

<151> 2000-08-25

<150> GB 0103110.3

<151> 2001-02-07

<160> 54

<170> PatentIn version 3.0

<210> 1

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Sequence of nuclear location sequence contained within the N-term  
inal of IL-alpha propiece

<400> 1

Asn Gly Lys Val Leu Lys Lys Arg Arg Leu  
1 5 10

<210> 2

<211> 16

<212> PRT

<213> Artificial

<220>

<223> Signal sequence peptide from Antennapedia homeodomain

<400> 2

Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys  
1 5 10 15

<210> 3

<211> 15

<212> PRT

<213> Artificial

<220>

<223> The fibroblast growth factor signal sequence peptide

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03 FEB 12 PM 12:19

&lt;400&gt; 3

Ala Ala Val Ala Leu Leu Pro Ala Val Leu Leu Ala Leu Leu Ala  
 1 5 10 15

&lt;210&gt; 4

&lt;211&gt; 29

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; HIV tat signal sequence peptide

&lt;400&gt; 4

Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys Lys Arg  
 1 5 10 15

Arg Gln Arg Arg Arg Pro Pro Gln Gly Ser Gln Thr His  
 20 25

&lt;210&gt; 5

&lt;211&gt; 4

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Peptide sequence of an N-terminal fluorescein isothiocyanate (FITC) peptide motif

&lt;400&gt; 5

Gly Gly Gly Gly  
 1

&lt;210&gt; 6

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Fragment of IFN-gamma

&lt;400&gt; 6

Arg Lys Arg Lys Arg Ser Arg  
 1 5

&lt;210&gt; 7

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Fragment of the N-terminus of fibroblast growth factor.

&lt;400&gt; 7

Asn Tyr Lys Lys Pro Lys Leu

1 5

<210> 8  
 <211> 8  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Luinus luteus nuclear protein import sequence

<400> 8

Lys Pro Lys Lys Lys Lys Glu Lys  
 1 5

<210> 9  
 <211> 5  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Sequence of the basic motif in the nuclear protein import sequence of Smad 3 protein

<400> 9

Lys Lys Leu Lys Lys  
 1 5

<210> 10  
 <211> 11  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Sequence of intracellular loop of 5HT2A receptor

<400> 10

Ser Leu Glu Lys Lys Leu Gln Asn Ala Thr Asn  
 1 5 10

<210> 11  
 <211> 23  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Sequence of C-terminal transmembrane 7 domain derived from 5HT2A receptor

<400> 11

Lys Thr Tyr Arg Ser Ala Phe Ser Arg Tyr Ile Gln Tyr Lys Glu Asn  
 1 5 10 15

Lys Lys Pro Leu Gln Leu Ile  
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<210> 12  
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<212> PRT  
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<220>  
<223> Fragment of HIV TAT

<400> 12

Arg Lys Lys Arg Arg Gln Arg Arg Arg  
1 5

<210> 13  
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<220>  
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<400> 13

Gly Phe Leu Gly  
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<210> 14  
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<400> 14

Asp Asp Asp Asp Lys  
1 5

<210> 15  
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<220>  
<223> peptide

<400> 15

Glu Tyr Phe Pro  
1

<210> 16  
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<220>  
<223> Nuclear protein import sequence of hPER1

&lt;400&gt; 16

Ser	Arg	Arg	His	His	Cys	Arg	Ser	Lys	Ala	Lys	Arg	Ser	Arg	His	His
1				5					10					15	

&lt;210&gt; 17

&lt;211&gt; 16

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Peptide

&lt;400&gt; 17

Gly	Arg	Arg	His	His	Cys	Arg	Ser	Lys	Ala	Lys	Arg	Ser	Arg	His	His
1				5					10					15	

&lt;210&gt; 18

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 18

Gly	Met	Asp	Tyr	Lys	Asp	Asp	Asp	Asp	Lys	Gly	Tyr	Gly	Arg	Lys	Lys
1				5					10					15	

Lys	Arg	Arg	Gln	Arg	Arg	Arg
			20			

&lt;210&gt; 19

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 19

Gly	Met	Asp	Tyr	Lys	Asp	Asp	Asp	Asp	Lys	Gly	Tyr	Gly	Arg	Lys	Lys
1				5					10					15	

Lys	Arg	Arg	Gln	Arg	Arg	Arg
			20			

&lt;210&gt; 20

&lt;211&gt; 19

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 20

Gly	Met	Asp	Tyr	Lys	Asp	Asp	Asp	Asp	Lys	Gly	Met	Asp	Tyr	Asp	Asp
1				5					10					15	

Asp Asp Lys

&lt;210&gt; 21

&lt;211&gt; 17

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 21

Gly	Arg	Gln	Ile	Lys	Ile	Trp	Phe	Gln	Asn	Arg	Arg	Met	Lys	Trp	Lys
1				5					10					15	

Lys

&lt;210&gt; 22

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 22

Gly	Arg	Arg	Arg	Arg	Arg	Arg	Arg	Arg	Arg	Arg
1				5					10	

&lt;210&gt; 23

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 23

Gly	Lys	Lys	Lys	Lys	Lys	Lys	Lys	Lys	Lys	Lys
1				5					10	

&lt;210&gt; 24

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 24

Gly His His His His His His His His His  
 1 5 10

<210> 25  
 <211> 9  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Peptide

<400> 25

Gly Asp Pro Lys Lys Lys Arg Lys Val  
 1 5

<210> 26  
 <211> 19  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 26

Gly Lys Lys Thr Gly Lys Asn Arg Lys Leu Lys Ser Lys Arg Val Lys  
 1 5 10 15

Pro Arg Asp

<210> 27  
 <211> 12  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Peptide

<400> 27

Gly Arg Lys Gly Lys His Lys Arg Lys Lys Leu Pro  
 1 5 10

<210> 28  
 <211> 18  
 <212> PRT  
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<220>  
 <223> peptide

<400> 28

Gly Lys Arg Val Ala Lys Arg Lys Leu Ile Glu Gln Asn Arg Glu Arg  
 1 5 10 15

Arg Arg

<210> 29  
 <211> 18  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 29

Gly	Arg	Lys	Leu	Lys	Lys	Lys	Lys	Asn	Glu	Lys	Glu	Asp	Lys	Arg	Pro
1				5					10					15	

Arg Thr

<210> 30  
 <211> 17  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 30

Gly	Lys	Lys	Thr	Asn	Leu	Phe	Ser	Ala	Leu	Ile	Lys	Lys	Lys	Lys	Thr
1				5					10					15	

Ala

<210> 31  
 <211> 18  
 <212> PRT  
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<220>  
 <223> peptide

<400> 31

Gly	Arg	Arg	Glu	Arg	Asn	Lys	Met	Ala	Ala	Ala	Lys	Cys	Arg	Asn	Arg
1				5					10					15	

Arg Arg

<210> 32  
 <211> 18  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide



&lt;400&gt; 32

Gly Lys Arg Ala Arg Asn Thr Glu Ala Ala Arg Arg Ser Arg Ala Arg  
 1 5 10 15

Lys Leu

&lt;210&gt; 33

&lt;211&gt; 14

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 33

Gly Arg Arg Arg Arg Ala Thr Ala Lys Tyr Arg Thr Ala His  
 1 5 10

&lt;210&gt; 34

&lt;211&gt; 15

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 34

Gly Lys Arg Arg Arg Arg Ala Thr Ala Lys Tyr Arg Ser Ala His  
 1 5 10 15

&lt;210&gt; 35

&lt;211&gt; 12

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 35

Gly Arg Arg Arg Arg Lys Arg Leu Ser His Arg Thr  
 1 5 10

&lt;210&gt; 36

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 36

Gly Arg Arg Arg Arg Arg Glu Arg Asn Lys  
 1 5 10

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<210> 37  
 <211> 16  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 37

Gly Lys His Arg His Glu Arg Gly His His Arg Asp Arg Arg Glu Arg  
 1 5 10 15

<210> 38  
 <211> 17  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 38

Gly Lys Lys Lys Arg Lys Leu Ser Asn Arg Glu Ser Ala Lys Arg Ser  
 1 5 10 15

Arg

<210> 39  
 <211> 16  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 39

Ser Arg Arg His His Cys Arg Ser Lys Ala Lys Arg Ser Arg His His  
 1 5 10 15

<210> 40  
 <211> 16  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 40

Ser Ala Arg His His Cys Arg Ser Lys Ala Lys Arg Ser Arg His His  
 1 5 10 15

<210> 41  
 <211> 16  
 <212> PRT

<213> Artificial

<220>

<223> peptide

<400> 41

Ser Arg Ala His His Cys Arg Ser Lys Ala Lys Arg Ser Arg His His  
1 5 10 15

<210> 42

<211> 16

<212> PRT

<213> Artificial

<220>

<223> peptide

<400> 42

Ser Arg Arg Ala His Cys Arg Ser Lys Ala Lys Arg Ser Arg His His  
1 5 10 15

<210> 43

<211> 16

<212> PRT

<213> Artificial

<220>

<223> peptide

<400> 43

Ser Arg Arg His Ala Cys Arg Ser Lys Ala Lys Arg Ser Arg His His  
1 5 10 15

<210> 44

<211> 16

<212> PRT

<213> Artificial

<220>

<223> peptide

<400> 44

Ser Arg Arg His His Ala Arg Ser Lys Ala Lys Arg Ser Arg His His  
1 5 10 15

<210> 45

<211> 16

<212> PRT

<213> Artificial

<220>

<223> peptide

<400> 45

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Ser Arg Arg His His Cys Ala Ser Lys Ala Lys Arg Ser Arg His His  
 1 5 10 15

<210> 46  
 <211> 16  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 46

Ser Arg Arg His His Cys Arg Ala Lys Ala Lys Arg Ser Arg His His  
 1 5 10 15

<210> 47  
 <211> 16  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 47

Ser Arg Arg His His Cys Arg Ser Ala Ala Lys Arg Ser Arg His His  
 1 5 10 15

<210> 48  
 <211> 16  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 48

Ser Arg Arg His His Cys Arg Ser Lys Ala Ala Arg Ser Arg His His  
 1 5 10 15

<210> 49  
 <211> 16  
 <212> PRT  
 <213> Artificial

<220>  
 <223> peptide

<400> 49

Ser Arg Arg His His Cys Arg Ser Lys Ala Lys Ala Ser Arg His His  
 1 5 10 15

<210> 50  
 <211> 16  
 <212> PRT  
 <213> Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 50

Ser	Arg	Arg	His	His	Cys	Arg	Ser	Lys	Ala	Lys	Arg	Ala	Arg	His	His
1				5					10					15	

&lt;210&gt; 51

&lt;211&gt; 16

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 51

Ser	Arg	Arg	His	His	Cys	Arg	Ser	Lys	Ala	Lys	Arg	Ser	Ala	His	His
1				5					10					15	

&lt;210&gt; 52

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 52

Arg	Arg	His	His	Cys	Arg	Ser	Lys	Ala	Lys	Arg	Ser	Arg
1				5					10			

&lt;210&gt; 53

&lt;211&gt; 15

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;400&gt; 53

Gln	Glu	Leu	Ser	Glu	Gln	Ile	His	Arg	Leu	Leu	Leu	Gln	Pro	Val
1				5					10					15

&lt;210&gt; 54

&lt;211&gt; 4

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; peptide

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;223&gt; X = R, H or K

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<400> 54

Xaa Xaa Xaa Xaa  
1